

What is claimed is:

1. An absorbable, crystalline, monocentric, polyaxial copolymer comprising:

a central atom selected from the group consisting of carbon and nitrogen; and

at least three axes originating and extending outwardly from the central atom,

each axis comprising:

an amorphous, flexible component adjacent to and originating from the central atom, the amorphous component comprising repeat units derived from at least one cyclic monomer selected from the group consisting

essentially of carbonates and lactones; and

a rigid, crystallizable component extending outwardly from the amorphous, flexible component, the crystallizable component comprising repeat units derived from at least one lactone;

wherein the copolymer comprises a melting temperature greater than 120°C, a heat of fusion greater than 10 J/g, and an endothermic transition at 40 - 100°C, wherein the endothermic transition can be controlled by subsequent heat treatment of the copolymer.

2. The copolymer set forth in claim 1 wherein the subsequent heat treatment comprises orientation.

3. The copolymer set forth in claim 1 wherein the subsequent heat treatment comprises annealing above 25°C.

4. The copolymer set forth in claim 1 wherein the crystallizable component comprises repeat units derived from l-lactide.

5. The copolymer set forth in claim 1 wherein the crystallizable component comprises repeat units derived from glycolide.

6. The copolymer set forth in claim 4 wherein the crystallizable component comprises repeat units derived from a second monomer selected from the group consisting of trimethylene carbonate, caprolactone, p-dioxanone, and 1,5-dioxepan-2-one.

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7. The copolymer set forth in claim 5 wherein the crystallizable component comprises repeat units derived from a second monomer selected from the group consisting of trimethylene carbonate, caprolactone, p-dioxanone, and 1,5-dioxepan-2-one.

10 8. A composite tubular cover or mantle for a stent comprising a polymeric matrix reinforced with monofilament cross-spirals, wherein at least one of the matrix and the reinforcement comprise the copolymer of claim 1.

9. A device for sealing a puncture in a blood vessel, comprising:

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a first flexible sealing member, positionable inside the blood vessel immediately adjacent to the puncture;

an elongated member comprising a composite and having an axial direction, a cross-sectional diameter, a proximal end and a distal end, wherein the first sealing member is attached to the distal end of the elongated member, the elongated member being capable of positioning the first sealing member within the blood vessel and immediately adjacent to the puncture, the elongated member further comprising a distal locking portion comprising an enlarged cross-sectional diameter at the distal portion which extends outwardly from the punctured blood vessel when the first sealing member is positioned within the blood vessel and immediately adjacent to the puncture; and

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a second flexible sealing member threadable onto the elongated member by an opening defined therein, the second sealing member

comprising locking means for locking onto the distal locking portion of the elongated member, such that the second sealing means is locked onto the elongated member on the outside of the blood vessel immediately adjacent to the puncture thereby sealing the puncture.

5        10.     A device as set forth in claim 9 wherein the locking means of the second sealing member comprises the opening defined therein comprising a diameter less than the enlarged cross-sectional diameter of the distal locking portion of the elongated member and wherein the second flexible sealing member is capable of stretching the opening defined therein for frictional engagement with the distal locking portion of the elongated member.

10       11.     A device as set forth in claim 9 wherein the locking means of the second sealing member comprises a further flexible member threadable onto the elongated member having an opening defined therein comprising a diameter less than the enlarged cross-sectional diameter of the distal locking portion of the elongated member, the further flexible member being capable of stretching the opening defined therein for frictional engagement with the distal locking portion of the elongate member, wherein the further flexible member is locked immediately adjacent to the second sealing member and opposite to the puncture of the blood vessel.

20       12.     A device as set forth in claim 9 wherein at least one of the first and second sealing members comprises an absorbable polymer.

13. A device as set forth in claim 12 wherein at least one of the first sealing member and the second sealing member comprises an absorbable, crystalline, monocentric, polyaxial copolymer comprising:

a central atom selected from the group consisting of carbon and nitrogen; and

5 at least three axes originating and extending outwardly from the central atom, each axis comprising:

an amorphous, flexible component adjacent to and originating from the central atom, the amorphous component comprising repeat units derived from at least one cyclic monomer selected from the group consisting

10 essentially of carbonates and lactones; and

a rigid, crystallizable component extending outwardly from the amorphous, flexible component, the crystallizable component comprising repeat units derived from at least one lactone.

14. A device as set forth in claim 9 wherein the elongated member comprises a  
15 composite comprising a highly flexible sheath and a less flexible solid, monofilament core, the less flexible core within the sheath comprising the enlarged cross-sectional diameter of the distal locking portion of the elongated member composite.

15. A device as set forth in claim 14 wherein the sheath comprises a braided suture  
20 and the less flexible filament is threaded through the interior portion of the suture.

16. A device as set forth in claim 15 wherein the ends of the filament are tapered.

17. A device as set forth in claim 14 wherein the less flexible filament is sufficiently flexible to compress and frictionally engage the opening defined within the second sealing member.